Distribution Systems

Comprehensive and versatile medical image distribution platforms for a range of mediums including film, disc, network or web.

Manufactured by **Codonics**, **Pacsgear**, **Matrox** and **Laurel Bridge**.

your single source supplier

IMAGING Solutions

your single source supplier

Contents


CODONICS


pacsgear


matrox
Graphics for Professionals


LAUREL BRIDGE

Disc Publishers

Disc publishers that offer exceptional speed, efficiency and ease of use.

Codonics

Codonics Virtua® is an advanced CD / DVD burning solution incorporating keyboard, monitor, mouse, burner and printer into one easy-to-use design. With Virtua® you'll be able to print directly onto CDs and DVDs quickly and easily, and create custom designs for a professional look and to build your brand.

Virtua® Medical Disc Publisher

A Revolutionary CD/DVD Burner

The most advanced solution for recording patient studies and reports onto disc. Codonics Virtua line of Medical Disc Publishers provide the fastest, easiest way to record and label multiple medical studies and reports to CD or DVD. Discs are recorded, labelled and ready to leave with the patient without workflow interruption. This innovative, DICOM-compliant network device offers several models to address every need and budget. To keep pace with multi-modality environments or high volume imaging applications, Virtua XR records up to 60 CDs or 30 DVDs an hour while the Virtua ECO line includes a full feature set in an ultra-compact and economic design.

Virtua features an advanced processor for receiving and managing studies, a robotic disc recorder and printer, and a user-friendly touch screen interface. The built-in printer produces brilliant, full-colour disc labels that include patient demographics and the facility's address and logo for marketing. Customers can create their own custom labels or use Codonics disc label design service.

Virtua® Key Advantages:

- High performance system designed for multiple DICOM workstations to concurrently spool hundreds of studies
- Intuitive touch screen has an easy-to-use interface that optimises daily workflow
- Use Codonics Clarity Viewer™ or select from a host of options, including eFilm™ Lite
- Built-in web server allows users to remotely access and control all functions from a web browser
- Holds 100 CDs or DVDs, or 50 of each
- Disc creation logs assist with HIPAA compliance and automatically generates IHE PDI compliant discs
- Sunrise Express "Swap" Warranty expedites a replacement disc recorder if the problem cannot be solved by our 24/7 support team
- Models available to suit every need and budget

Virtua® is Compact, Fast and Intuitive

Virtua off loads disc recording from the modality and PACS workstations so that patients can be processed without any interruption to the workflow. Its easy-to-use and integrated design offers a world-class interface unlike any other medical device you've seen before, with an intuitive touch screen that allows novices to become experts in minutes.

- Record DICOM images quickly and effortlessly to CD or DVD
- Distribute images economically to patients, referring physicians and outside facilities
- Automated CD/DVD disc labelling increases productivity and ensures accuracy of patient information

> ***"We love the output from Virtua. We love the automated production of the discs and we love the fact that right from the scanner, the technicians can operate it."***
>
> - Lawrence N. Tanenbaum, M.D., FACR, (Edison Imaging)

> ***"The first practical CD/DVD burner to really meet our needs. It's so easy to use, we became experts with the system in seconds. We've looked at alternative burners, but none compare."***
>
> - Norman Y. Schoenberg, M.D. P.C. (Spine and Joint Services)

Print in Full Colour Directly Onto CD/DVD to Create Custom Discs

Looking to build your referral business? Virtua's customised disc capabilities build brand awareness for your business while providing referring physicians with a digital record of their patients' studies and reports. A great marketing tool, customized CDs or DVDs will impress physicians and drive more referrals to your facility.

> *We really like the customized label on the CD. I also like the fact that I can publicise all of my sites.*
>
> - Lawrence N. Tanenbaum, M.D., FACR (Edison Imaging)

Virtua® Models

Virtua® XR

Media Inputs / Outputs	2 x 50 disc input bins / 1 x 25 disc output bin
CDs	Up to 60 / hr*
DVDs	Up to 30 / hr*
Number of Drives	2
Disc Capacity	100
Disc Labelling	Full Colour
CPU	Intel Core 2 Duo
Memory	4 Gb
Data Storage	3 x 150 Gb (2 x in RAID)
Virtua XR	VIRTUA-XR

Virtua® 2

Media Inputs / Outputs	2 x 50 disc input bins / 1 x 25 disc output bin
CDs	Up to 30 / hr*
DVDs	Up to 15 / hr*
Number of Drives	2
Disc Capacity	100
Disc Labelling	Full Colour
CPU	Intel Core 2 Duo
Memory	2 Gb
Data Storage	160 Gb
Virtua	VIRTUA-2

Virtua® C

Media Inputs / Outputs	1 x 20 disc input bins / 1 x 25 disc output bin
CDs	Up to 25 / hr*
DVDs	Up to 10 / hr*
Number of Drives	1
Disc Capacity	20
Disc Labelling	Full Colour
CPU	Intel Core 2 Duo
Memory	2 Gb
Data Storage	40 Gb
Virtua C	VIRTUA-C

Virtua® E

Media Inputs / Outputs	1 x 20 disc input bins / 1 x 25 disc output bin
CDs	Up to 25 / hr*
DVDs	Up to 10 / hr*
Number of Drives	1
Disc Capacity	20
Disc Labelling	Full Colour
CPU	Intel Core 2 Duo
Memory	2 Gb
Data Storage	40 Gb
Virtua E	VIRTUA-E

* Based on a typical study and network configuration

Virtua® XR

Overview

The Codonics Virtua XR Medical Disc Publisher is the world's fastest medical disc recording system. With unprecedented speed, it records over 60 CDs or 30 DVDs an hour. Virtua XR is specifically designed for today's high-volume imaging applications such as breast MR, PET/CT, MRA and CTA. It is the only CD/DVD recorder that keeps up with today's multi-modality environments where imaging systems can send tens of thousands of images an hour. Setting the standard for medical disc recording systems, customised discs are recorded and ready to leave with the patient without any interruption in workflow.

Virtua XR's compact design includes an advanced processor for receiving and managing studies, a robotic disc recorder and printer, and a world-class touch screen interface. The built-in printer produces brilliant, full-colour disc labels that can be easily created by the customer or through Codonics exclusive label design service. Not only is Virtua XR the fastest, most compact, and user-friendly system on the market, it also happens to be the most affordable.

You'll wonder how you ever got along without it.

Specifications:

Media Inputs	Two 50-disc input bins, 100-disc total capacity
Media Outputs	One 25-disc output bin
Number of Drives	Two 18x DVD±R /CD-R
Recordable Formats	CD-R, DVD-R,
Label Print Technology	Inkjet
Print Resolution	Up to 4800 dpi
Ink Cartridges	One colour cartridge (CMY); one black cartridge
User Interface	Integrated/detachable 15" LCD touch screen & remote web browser access
Performance	30 DVDs per hour, 60 CDs per hour
Processor	Intel® Core™2 Duo
Memory	4 GB
Hard Drives	Three 150 GB
Interfaces	10/100 Base-T/Gigabit Ethernet (RJ-45) USB-2 port and flash card reader on front of unit
Network Protocols	DICOM Store SCP (up to 24 simultaneous connections) DICOM Query-Retrieve HTTP Web Server (for remote control and configuration)
Smart Drive	USB flash drive for storing configuration data
Power	100-240VAC/230VAC, 50/60 Hz, 250 VA (operating)
Dimensions	6.7" (67.8 cm) H, 19.2" (48.6 cm) W, 26.7" (67.8 cm) L
Weight	60 lbs. (28 kg.)

Features / Benefits:

- Fastest recording and labelling time in the medical market
- Designed to concurrently handle large data sets from the latest modalities
- Adheres to all industry standards including DICOM part 10, IHE PDI, and audit logs for HIPAA compliance
- Automatically records patient studies without tying up valuable workstation and employee resources
- On-demand disc creation and labelling directly from modality workstations
- Studies can be conveniently viewed using the included DICOM viewer
- Automatic Mode records patient studies to disc directly from a workstation
- Manual Mode creates customised discs via the easy-to-use touch screen interface or web browser
- Medical Compliance: FDA cleared to market (K060446)
- Compact design occupies just two feet of counter space and eliminates disorganised cables, separate monitor, keyboard and mouse

Virtua® 2

Overview

The Codonics Virtua 2 Medical Disc Publisher is a complete network-based solution for recording and labelling diagnostic studies onto CD and DVD media. Virtua integrates dual CD/DVD drives, a high speed disc label printer, an easy-to-use touch screen interface and a high performance computer into a compact design. Virtua 2 optimises workflow and increases productivity by automatically creating IHE PDI compliant discs. Virtua 2 uses Codonics high quality CD/DVD media that provides reliable storage for data distribution.

Specifications:

Media Inputs	Two 50-disc input bins, 100-disc total capacity
Media Outputs	One 25-disc output bin
Number of Drives	Two DVD±R /CD-R dual-layer drives
Recordable Formats	CD-R, DVD-R,
Label Print Technology	Inkjet
Print Resolution	Up to 4800 dpi
Ink Cartridges	One colour cartridge (CMY)
Throughput	Up to 40 discs per hour (recorded and labelled)
User Interface	Integrated/detachable 15" LCD touch screen and remote web browser access
Processor	Intel Pentium® 4
Memory	512 MB
Hard Disk	160 GB
Interfaces	10/100 Base-T Ethernet (RJ-45) USB-2 port and flash card reader on front of unit
Network Protocols	DICOM Store SCP (up to 24 simultaneous connections) HTTP Web Server (for remote control and configuration)
Smart Drive	256MB USB flash drive for storing configuration data
Power	100-120VAC/230VAC, 50/60 Hz, 250 W (operating)
Dimensions	26.7" (67.8 cm) H, 19.2" (48.6 cm) W, 26.7" (67.8 cm) L
Weight	60 lbs. (28 kg.)

Features / Benefits:

- Automatically records patient studies without tying up valuable workstation and employee resources
- On-demand disc creation and labelling directly from modality workstations
- Studies can be conveniently viewed using the included DICOM viewer
- Automatic Mode records patient studies to disc without operator assistance
- Manual Mode creates customised discs via the easy-to-use touch screen interface or web browser
- Disc creation logs assist with HIPAA compliance
- Medical Compliance: FDA cleared to market (K060446)
- Compact design occupies just two feet of counter space and eliminates the need for messy cables, monitor, keyboard or mouse

Virtua® E

Overview

Virtua E is the perfect, economical, easy to use, image distribution accessory for any modality. Its compact design features a table-top touch screen, an advanced processor for receiving and managing studies, a robotic disc recorder and printer, and a user-friendly interface. The built-in printer produces brilliant, full-color disc labels that include patient demographics and the facility's address and logo for marketing.

Specifications:

Media Input	One 20-disc input bin
Media Output	One 25-disc output bin
Optical Drive	One CD/DVD drive
Recordable Formats	CD-R, DVD-R
Label Print Technology	Inkjet
Print Resolution	Up to 4800 dpi
Ink Cartridge	One colour cartridge (CMY)
User Interface	15" LCD touch screen Remote web browser access using Internet Explorer®
Performance***	4 minutes time to first CD 7 minutes time to first DVD
Data Storage	40 GB
Interface	10/100 Base-T/Gigabit Ethernet (RJ-45)
Network Protocols	DICOM Store SCP HTTP Web Server (for remote control and configuration)
Smart Drive	USB flash drive for storing configuration data
Power Requirements	100-240VAC, 50/60 Hz, 250 VA (rated power)
Dimensions	10.5" (26.7 cm) H, 18.2" (46.2 cm) W, 21.7" (55.1 cm) L
Weight	43 lbs. (19.3kg.)
Regulatory	Full medical device compliance including FDA and MDD CE Class I,GMP/QSR ISO13485- 2003, and 60601-1 Safety and EMC/EMI for Healthcare Facilities

Features / Benefits:

- Automatically records and labels patient studies without tying up your workstation or employee resources
- Narrated messages provide complete system status at the touch of a button
- Studies can be conveniently viewed from disc on a workstation using one or more DICOM viewers, specialized viewers and/ or custom OEM viewers*
- Compact design, footprint and height, with a user-friendly touch-screen facilitates convenient access to the system
- HL7 and DICOM Structured Reports can be received and matched to a patient's study allowing the recording of both the report and study together on the same disc**
- User interface is available in multiple languages
- Scheduled Archive automatically records all studies to disc for backup/disaster recovery. It also records a complete history of all archive activities on each disc**
- Meets industry standards including DICOM part 10, IHE PDI, and audit logs for HIPAA compliance

*not all viewers are standard
**optional features

Virtua® C

Overview

Virtua C is the perfect, economical, easy-to-use, image distribution accessory for any modality offering outstanding efficiency and ease of use. Its compact design includes an advanced processor for receiving and managing studies, a robotic disc recorder and printer, and a user-friendly web interface. Virtua C is ideally suited for single modality applications or for a small clinical setting. The built-in printer produces brilliant, full-colour disc labels that include patient demographics and the facility's address and logo for marketing. Customers can create their own custom labels or use Imaging Solutions disc label design service offered exclusively to our customers. Virtua C is designed for use with Codonics high quality CD-R and DVD-R printable discs and colour ink cartridge, ensuring long data life and maximum compatibility with modalities and PACS systems.

Specifications:

Media Input	One 20-disc input bin
Media Output	One 25-disc output bin
Optical Drive	One CD/DVD drive
Recordable Formats	CD-R, DVD-R
Label Print Technology	Inkjet
Print Resolution	Up to 4800 dpi
Ink Cartridge	One colour cartridge (CMY)
User Interface	Remote web browser access using Internet Explorer®
Performance***	4 minutes time to first CD 7 minutes time to first DVD
Data Storage	40 GB
Interface	10/100 Base-T/Gigabit Ethernet (RJ-45)
Network Protocols	DICOM Store SCP HTTP Web Server (for remote control and configuration)
Smart Drive	USB flash drive for storing configuration data
Power Requirements	100-240VAC, 50/60 Hz, 250 VA (rated power)
Dimensions	10.5" (26.7 cm) H, 18.2" (46.2 cm) W, 21.7" (55.1 cm) L
Weight	32 lbs. (14.6kg.)
Regulatory	Full medical device compliance including FDA and MDD CE Class I, GMP/QSR ISO13485- 2003, and 60601-1 Safety and EMC/EMI for Healthcare Facilities

Web User Interface

Features / Benefits:

- Automatically records and labels patient studies without tying up your workstation or employee resources
- Narrated messages provide complete system status at the touch of a button
- Studies can be conveniently viewed from disc on a workstation using one or more DICOM viewers, specialised viewers and/ or custom OEM viewers*
- HL7 and DICOM Structured Reports can be received and matched to a patient's study allowing the recording of both the report and study together on the same disc**
- User interface is available in multiple languages
- Scheduled Archive automatically records all studies to disc for backup/disaster recovery. It also records a complete history of all archive activities on each disc**
- Ultra compact design, footprint and height eliminates need for additional components,and facilitates placement in mobile coaches
- Meets industry standards including DICOM part 10, IHE PDI, and audit logs for HIPAA compliance

*not all viewers are standard
**optional features

Think About Your Image...

Imaging Solutions Design Service

Imaging Solutions offer an exclusive design service that creates a professional, customised, full colour corporate disc design to market your practice. Let use help you create the look that will give you a marketing edge, making you stand out from your competition.

VS

Codonics full colour CD and DVD

Black and white text or hand-written discs

PacsGEAR

PACSGEAR is the leader in PACS/EHR connectivity solutions for hospitals and healthcare facilities. Its innovative software seamlessly integrates documents, film, video, visible light and other images from any department to any PACS/EHR. Healthcare personnel in specialties such as radiology, cardiology, gastroenterology, dermatology, orthopedics and pathology can connect, view and share images and results to enable health information exchange.

MediaWriter™

MediaWriter™ delivers affordable, reliable DICOM CD / DVD burning wherever images are created. From the desktop to the fi lm room, MediaWriter scales to meet all of your image distribution needs. Now, image-intensive departments such as radiology, cardiology, gastroenterology, dermatology, orthopedics, and pathology have a distribution system that is easy to confi gure, deploy and maintain. An ideal solution for outlying departments, hospitals and imaging facilities – low maintenance, cost-effective and intuitive.

MediaWriter is a software/hardware solution that offers fast, one-click burning from any web browser. Burn DICOM studies and reports to CDs/ DVDs, or USB fl ash drives to create a complete and portable medical record.

MediaWriter CDs/DVDs include GEARView™, an integrated DICOM viewer that lets physicians and patients view studies and reports anywhere.

- **Easy** – Easy to confi gure, deploy and maintain
- **Fast** – One-click burning from any web browser
- **"It just works"**– Burns DICOM studies and reports on media to create a complete and portable medical record

Features:

- Directly create DICOM CDs/ DVDs from any PACS, modality user interface or web browser.
- Safeguard your portable media with AES 256-bit encryption technology.
- For large studies, MediaWriter spans multiple CDs or autodetects between CDs and DVDs.
- Includes GEARView, an embedded DICOM viewer.
- Export and anonymize DICOM CDs/DVDs with one click.
- Create customized splash screens and CD/DVD labels.
- Combines studies from multiple DICOM devices. Supports multi-patient burning.
- Interface supports 11 languages.
- Supports IHE workfl ow.
- MediaWriter includes additional features to scan documents, create electronic forms and import multimedia fi les-JPEGs, AVIs, MPEGs, and DICOM CDs/DVDs.

Burner Specifications

Model		MediaWriter D200	MediaWriter D35
Burner/Printer		Epson® Discproducer™	Primera® Bravo® SE
Robotics		Yes, AcuGrip™ technology	Yes, Primera technology
Typical Usage		Hospitals, fi lm rooms (up to 200 discs per day)	Departments, imaging centers, medical office buildings (up to 35 discs per day)
Burn/Print Time Per Disc		3-4 minutes, typical	3-4 minutes, typical
Disc Capacity		Holds 100 discs (CD and/or DVD)	Holds 20 discs (CD or DVD)
CD/DVD Drives		2 CD/DVD drives	1 CD/DVD drive
Recording Speed		40x CD-R; 12x DVD±R; 8x DVD±R DL	40x CD-R; 20x DVD±R; 10x DVD±R DL
Media		Inkjet-printable 12cm; PACSGEAR-specified media available	Inkjet-printable 12cm; PACSGEAR-specified media available
Inkjet Print Method		MicroPiezo® technology	Inkjet technology
Ink Cartridge	Type	Dye ink	Dye ink
	Ink Colors	6 cartridges (cyan, magenta, yellow, light cyan, light magenta, black)	1 cartridge (cyan, magenta, yellow)
	Palette	16.7M colors	16.7M colors
	Yield	1000 discs per six cartridges, typical	300 discs per cartridge, typical
Data Interface		USB 2.0 High Speed	USB 2.0 High Speed
OS Support		Windows XP (SP2)	Windows XP (SP2)
Electrical		100-120VAC/240VAC, 50/60Hz, 50W	120VAC/240VAC, 50/60Hz, 60W
Certifications		FCC Class B, CAN/CSA Class B, CE FCC Class A, CE	
System Requirements		1.4GHz processor, 10GB hard drive space, 1GB memory	2GHz processor, 10GB hard drive space, 1GB memory
Dimensions		(HxWxD) 14" x 15" x 18" (348 x 377 x 465mm)	7" x 15" x 14.75" (178 x 381 x 375mm)
Weight		52.9 lbs. (24kg)	11.5 lbs. (4.1kg)

Publisher Ink Cartridges

Imaging Solutions supplies a quality range of range of ink cartirdges to support our publiser products.

BravoPro Ink Cartridges

Ensure you can publish CDs and / or DVDs when you need to by using a BravoPro Colour Ink cartridges, ideal for use with Codonics or PacsGEAR products.

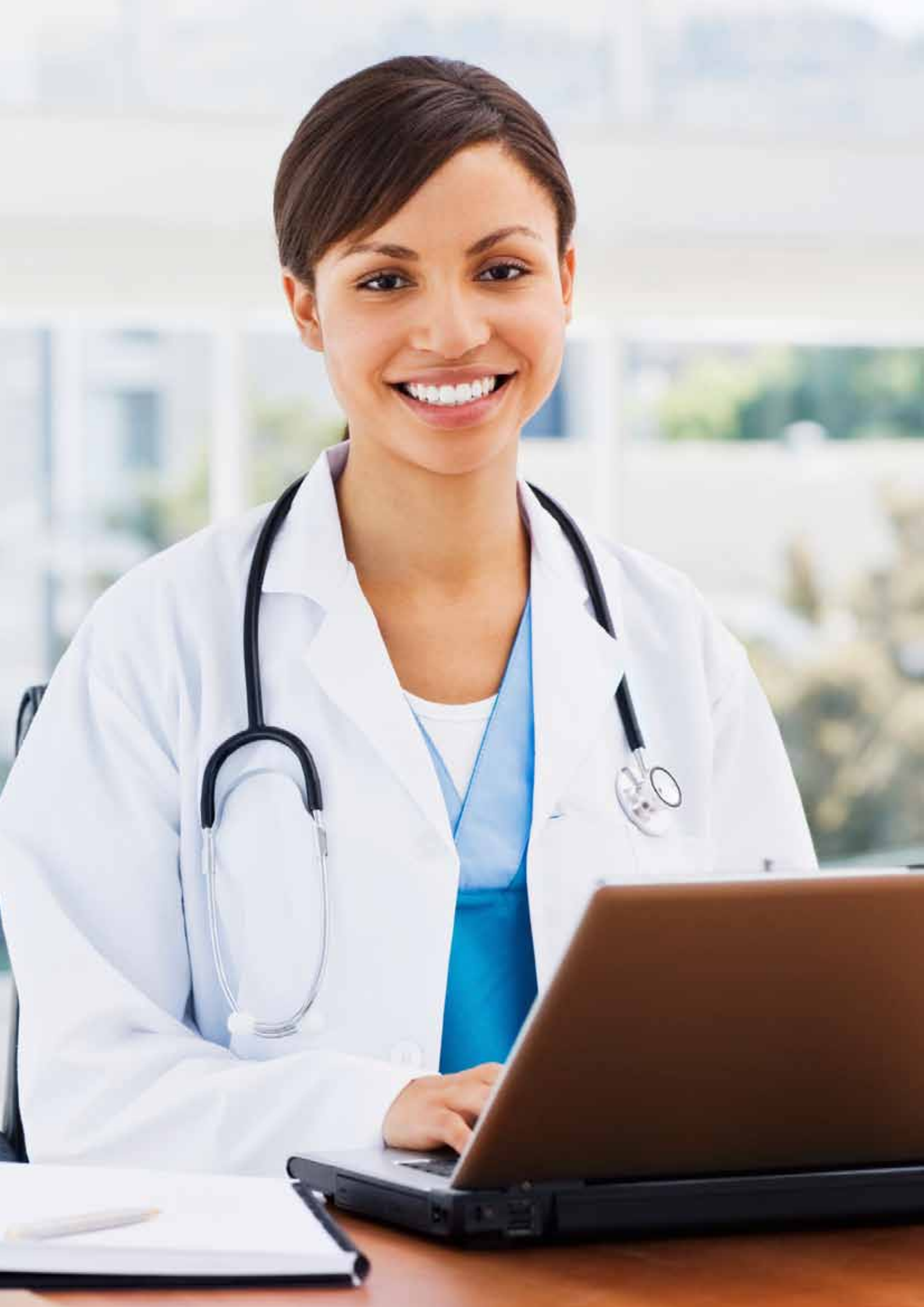
BravoPro Colour Ink Cartridge	FAR293
Bravo Pro Black Ink Cartridge	RAF294

Epson Ink Cartridges

These Epson ink cartridges provide another quality alternative for PacsGEAR products.

Epson PP100 Cyan Ink Cartridge	PJIC1(C)
Epson PP100 Light Cyan Ink Cartridge	PJIC2(LC)
Epson PP100 Light Magenta Ink Cartridge	PJIC3(LM)
Epson PP100 Magenta Ink Cartridge	PJIC4(M)
Epson PP100 Yellow Ink Cartridge	PJIC5(Y)
Epson PP100 Black Ink Cartridge	PJIC6(K)

The world's leading integrated medical image distribution systems from Imaging Solutions



DICOM Printers

These all-in-one imagers are an enormous breakthrough in performance, cost and quality for healthcare facilities.

Codonics

Codonics manufactures the world-renowned Horizon multi-media imager solution, which simultaneously prints conventional film, grey-scale paper and color paper in a variety of sizes. The diagnostic-compliant images match the monitor and its compact design enables it to be conveniently placed on a desktop. The system also accepts up to 24 DICOM connections.

Horizon® Multi-Media Imager

Horizon's multi-media alternatives allow you to show off the stunning output from any modality and market your advanced imaging equipment. Horizon is easy to use, requiring no operator intervention to go from film to colour to grayscale printing. For CR/DR applications, our Horizon XL model prints digitally stitched images on one continuous film with "true-size" imaging up to 51" in length. Codonics film is daylight safe, easy to handle, and eliminates wet film processing.

Horizon® Multi-Media Imager - Obsoletes Film-Only Imagers

Horizon prints on several sizes of film, grayscale paper and colour paper - without operator intervention, all while sitting on a counter top. This cost-effective, multi-media solution provides hardcopy alternatives that allow you to cater to the preferences of your referring physicians and grow your practice.

- Diagnostic dry film with superior quality
- Room light viewable grayscale paper that saves you money over traditional film
- Colour paper to attract referral business
- Compact design with the fastest print speed in its class

> *"We were really impressed by Horizon's quality and speed. Horizon typically prints an entire four-film study before the first film is complete on other 'high-end' imagers. Horizon has really improved our workflow."*
>
> - A. Joseph Borelli, M.D., MRI
> (Belfair)

The World's Most Versatile Imager

Film, colour and paper in one compact design obsoletes film-only imagers. The Horizon Multi-Media Imager offers more versatility than other imagers, by simultaneously printing diagnostic quality film, colour paper, and grayscale paper in one cost-effective, high performance device.

Key Advantages:

- A 'true network printer' with up to 24 DICOM connections and no additional hardware required
- Horizon pays for itself with savings in service costs over 5 years
- Custom job settings by modality to accurately match monitors
- Validated with all major OEM's, modalities, PACS and workstations
- Models available to suit every need and budget

> *"Allowing referring physicians to select their preferred image formats with speed and efficiency has helped enhance existing relationships and built new business for our radiology department."*
>
> - John C. Litchney, MBA, RT,
> (Administrator for The Cleveland Clinic)

Think About Your Image...

Codonics edge-to-edge archive colour photographic print

VS

Dull office-class colour paper print prone to fading and damage

A breakthrough technology for digital orthopaedic applications.

The industry's only dry long film imager, the Horizon XL Multi-media Imager prints digitally stitched images from CR/DR on one, continuous film. Available in two sizes, the **14" x 36"** and **14" x 51"** film is daylight safe and easy to handle, and folds to fit in a standard film jacket. In addition to long film, the XL prints on standard sizes of film, low-cost grayscale paper and colour paper all in the same compact device.

- Codonics long film is perfect for scoliosis, long bone studies, and paediatric and adult spines
- "True-size" imaging up to 51" in length
- Horizon XL saves space and eliminates wet film processing

> ***"The dry long film from Codonics provides the orthopaedic surgeon the perspective and confidence in their measurements and angles, lost with the minified image. It is the perfect solution for our orthopaedic needs"***
>
> - Helene Pavlov, M.D., FACR, Radiologist -in- Chief (Hospital for Special Surgery, New York, NY)

Horizon® Models

"The world's most versatile medical imager" ~ There is a Horizon model to suit every need and budget

Horizon® Ci

Blue/Clear Film	14"x17" 8"x10"
Grayscale Paper	14"x17" A A4
Colour Film/Paper	A A4
Horizon Ci	HZ-CI

Horizon® Ci-rad

Blue/Clear Film	14"x17" 11"x14" 8"x10"
Grayscale Paper	14"x17" 11"x14" A A4
Colour Film/Paper	A A4
Horizon Ci-s	HZ-CI-R

Horizon® GS

Blue/Clear Film	14"x17" 8"x10"
Grayscale Paper	14"x17" A A4
Horizon GS	HZ-GS

Horizon® GS-rad

Blue/Clear Film	14"x17" 11"x14" 8"x10"
Grayscale Paper	14"x17" 11"x14" A A4
Horizon GS-s	HZ-GS-R

Horizon® XL

Blue Film	14"x51" 14"x36"
Blue/Clear Film	14"x17" 8"x10"
Grayscale Paper	14"x17" A A4
Colour Film/Paper	A A4
Horizon Ci	HZ-XL

Horizon® SF

Blue/Clear Film	8"x10"
Grayscale Paper	A A4
Colour Film/Paper	A A4
Horizon Ci	HZ-SF

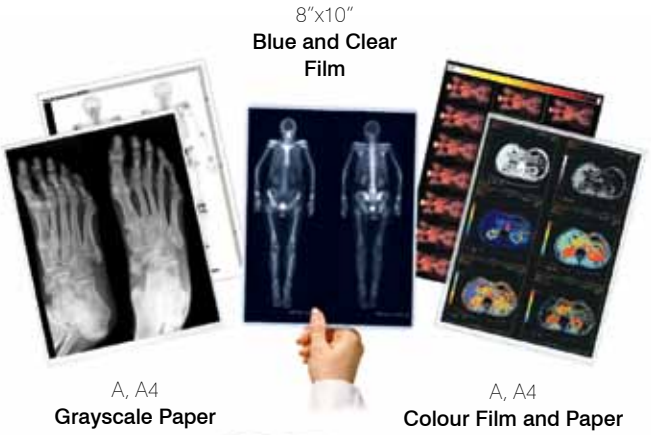
Horizon® SF

Overview

The Horizon® SF combines small format diagnostic film, colour paper and grayscale paper printing to provide the world's most versatile medical imager. Horizon's multiple media options help to immediately cut your costs, build referring physician loyalty and attract new business. High speed image processing, networking and spooling are standard.

Specifications:

Print Technology	Dye-diffusion and direct thermal (dry, daylight safe operation)
Spatial Resolution	320 DPI (12.6 pixels/mm)
Throughput	Up to 100 films per hour
Time To Operate	5 minutes (ready to print from "off ")
Gray Contrast Res	12 bits (4096)
Colour Resolution	16.7 million colours 256 levels each of cyan, magenta, and yellow
Media Inputs	Three supply cassettes, 50-100 sheets each, one colour ribbon
Media Outputs	Three receive trays, 50- sheet capacity each
Media Sizes	8" x 10" (blue and clear) DirectVista® Film A , A4 DirectVista Grayscale Paper A, A4 ChromaVista® Colour Paper and Colour Film*
Dmax	>3.10 with DirectVista Film
Archival	>20 years with DirectVista Film, under ANSI extended-term storage conditions
Supply Cassettes	All media is pre-packaged in factory sealed, disposable cassettes
Interfaces	Standard: 10/100 Base-T Ethernet (RJ-45), Serial Diagnostic Port, Serial Console
Network Protocols	Standard: FTP, LPR Optional: DICOM (up to 24 simultaneous connections),Windows network printing
Image Formats	Standard: TIFF, GIF, PCX, BMP, PGM, PNG, PPM, XWD, JPEG, SGI (RGB), Sun Raster, Targa Optional: DICOM, PostScript™ compatibility
Image Quality	Automatic calibration using built-in densitometer
Image Control	Gamma, Contrast, Saturation, Medical Colour Matching (MCM™), Polarity, Rotation, Scaling, Antialiasing
Sheet Control	Density Adjustment (Dmax), Look-Up Tables (LUT), Image Warnings, Captions, Sheet Coverage, Border Colour, Border Fill, Crop Anchor
Sheet Formatting	1:1-1:81; Variable Multi-Formatting (VMF™), Fixed Multi-Formatting (FMF™), 35mm SlideMaker™
Control Panel	Large, backlit LCD display, Status lights include Online, Alert, Fault, Active Power and Menu navigation buttons
Processor	Intel
Memory	256MB RAM
Hard Disk	20GB (18GB available for spooling)
Removable Disk	100MB ZIP™ Disk for software upgrades
Smart Card	32 KB for storing configuration data
Power	Universal Input: 100-120/230V~ 50/60 Hz, 600W printing, 150W idle
Heat Emission	Maximum 600W, 2,050 BTUs /hr. printing, 150W, 512 BTUs / hr. idle
Weight	66 lbs. (30 kg.)
Engine Dimensions	37 cm H, 52 cm W, 61 cm L
Environment	Operating Temperature: 15-30C Storage: -22.2 - 50.6C Operating Humidity: 10-70% R.H. (non-condensing)



8"x10"
Blue and Clear Film

A, A4
Grayscale Paper

A, A4
Colour Film and Paper

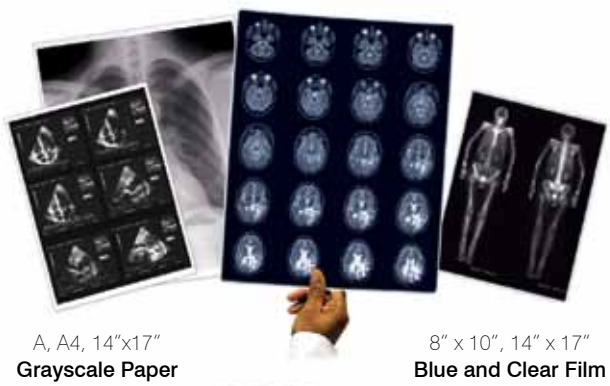
Horizon® GS

Overview

The Horizon® GS combines diagnostic film and grayscale paper printing to provide the world's most versatile medical grayscale imager. Horizon's multiple media options help to immediately cut your costs, build referring physician loyalty and attract new business. High speed image processing, networking and spooling are standard.

Specifications:

Print Technology	Direct thermal (dry, daylight safe operation)
Spatial Resolution	320 DPI (12.6 pixels/mm)
Throughput	Up to 100 films per hour
Time To Operate	5 minutes (ready to print from "off ")
Gray Contrast Res	12 bits (4096)
Media Inputs	Three supply cassettes, 80-100 sheets each
Media Outputs	Three receive trays, 50- sheet capacity each
Media Sizes	8" x 10", 14" x 17" (blue and clear) DirectVista® Film A, A4, 14" x 17" DirectVista Grayscale Paper
Dmax	>3.10 with DirectVista Film
Archival	>20 years with DirectVista Film, under ANSI extended-term storage conditions
Supply Cassettes	All media is pre-packaged in factory sealed, disposable cassettes
Interfaces	Standard: 10/100 Base-T Ethernet (RJ-45), Serial Diagnostic Port, Serial ConsoleNetwork Protocols: Standard: FTP, LPR
Optional	DICOM (up to 24 simultaneous connections),Windows network printing
Image Formats	Standard: TIFF, GIF, PCX, BMP, PGM, PNG, PPM, XWD, JPEG, SGI (RGB), Sun Raster, Targa Optional: DICOM, PostScript™ compatibility
Image Quality	Automatic calibration using built-in densitometer
Image Control	Gamma, Contrast, Polarity, Rotation, Scaling, Antialiasing
Sheet Control	Density Adjustment (Dmax), Look-Up Tables (LUT), Image Warnings, Captions, Sheet Coverage, Border Colour, Border Fill, Crop Anchor
Sheet Formatting	1:1-1:81; Variable Multi-Formatting (VMF™), Fixed Multi-Formatting (FMF™), 35mm SlideMaker™
Control Panel	Large, backlit LCD display, Status lights include Online, Alert, Fault, Active Power and Menu navigation buttons
Processor	Intel
Memory	256MB RAM
Hard Disk	20GB (18GB available for spooling)
Removable Disk	100MB ZIP™ Disk for software upgrades
Smart Card	32 KB for storing configuration data
Power	Universal Input: 100-120/230V~ 50/60 Hz, 600W printing, 150W idle
Heat Emission	Maximum 600W, 2,050 BTUs /hr. printing, 150W, 512 BTUs /hr. idle
Weight	66 lbs. (30 kg.)
Engine Dimensions	14.5" (37 cm) H, 20.5" (52 cm) W, 24" (61 cm) L
Environment	Operating Temperature: 15-30C
Storage	-22.2 - 50.6C
Operating Humidity	10-70% R.H. (non-condensing)



A, A4, 14"x17"
Grayscale Paper

8" x 10", 14" x 17"
Blue and Clear Film

Horizon® Ci

Overview

The Horizon® Ci combines diagnostic film, colour paper and grayscale paper printing to provide the world's most versatile medical imager. Horizon's multiple media options help to immediately cut your costs, build referring physician loyalty and attract new business. High speed image processing, networking and spooling are standard.

Specifications:

Print Technology	Dye-diffusion and direct thermal (dry, daylight safe operation)
Spatial Resolution	320 DPI (12.6 pixels/mm)
Throughput	Up to 100 films per hour
Time To Operate	5 minutes (ready to print from "off ")
Gray Contrast Res	12 bits (4096)
Colour Resolution	16.7 million colours 256 levels each of cyan, magenta, and yellow
Media Inputs	Three supply cassettes, 50-100 sheets each, one colour ribbon
Media Outputs	Three receive trays, 50- sheet capacity each
Media Sizes	8" x 10", 14" x 17" (blue and clear) DirectVista® Film A, A4, 14" x 17" DirectVista Grayscale Paper A, A4 ChromaVista® Colour Paper and Colour Film*
Dmax	>3.10 with DirectVista Film
Archival	>20 years with DirectVista Film, under ANSI extended-term storage conditions
Supply Cassettes	All media is pre-packaged in factory sealed, disposable cassettes
Interfaces	Standard: 10/100 Base-T Ethernet (RJ-45), Serial Diagnostic Port, Serial Console Network Protocols: Standard: FTP, LPR Optional: DICOM (up to 24 simultaneous connections),Windows network printing
Image Formats	Standard: TIFF, GIF, PCX, BMP, PGM, PNG, PPM, XWD, JPEG, SGI (RGB), Sun Raster, Targa Optional: DICOM, PostScript™ compatibility
Image Quality	Automatic calibration using built-in densitometer
Image Control	Gamma, Contrast, Saturation, Medical Colour Matching (MCM™), Polarity, Rotation, Scaling, Antialiasing
Sheet Control	Density Adjustment (Dmax), Look-Up Tables (LUT), Image Warnings, Captions, Sheet Coverage, Border Colour, Border Fill, Crop Anchor
Sheet Formatting	1:1-1:81; Variable Multi-Formatting (VMF™), Fixed Multi-Formatting (FMF™), 35mm SlideMaker™
Control Panel	Large, backlit LCD display, Status lights include Online, Alert, Fault, Active Power and Menu navigation buttons
Processor	Intel
Memory	256MB RAM
Hard Disk	20GB (18GB available for spooling)
Removable Disk	100MB ZIP™ Disk for software upgrades
Smart Card	32 KB for storing configuration data
Power	Universal Input: 100-120/230V~ 50/60 Hz, 600W printing, 150W idle
Heat Emission	Maximum 600W, 2,050 BTUs /hr. printing, 150W, 512 BTUs / hr. idle
Weight	66 lbs. (30 kg.)
Engine Dimensions	14.5" (37 cm) H, 20.5" (52 cm) W, 24" (61 cm) L
Environment	Operating Temperature: 15-30C
Storage	-22.2 - 50.6C
Operating Humidity	10-70% R.H. (non-condensing)

8" x 10", 14" x 17"
Blue and Clear Film

A, A4, 14"x17"
Grayscale Paper

A, A4
Colour Film and Paper

Horizon XL®

Overview

The Horizon® XL combines diagnostic film, colour paper and grayscale paper printing to provide the world's most versatile medical imager. Horizon XL features exclusive digital 36" and 51" dry long film ideal for long bone and scoliosis studies. A total print solution, Horizon XL will reduce your costs, save you space, and completely eliminate your wet film processing needs.

Specifications:

Print Technology	Dye-diffusion and direct thermal (dry, daylight safe operation)
Spatial Resolution	320 DPI (12.6 pixels/mm)
Throughput	Up to 100 films per hour
Time To Operate	5 minutes (ready to print from "off ")
Gray Contrast Res	12 bits (4096)
Colour Resolution	16.7 million colours 256 levels each of cyan, magenta, and yellow
Media Inputs	Three supply cassettes, 25-100 sheets each, one colour ribbon
Media Outputs	Three receive trays 50-sheet capacity each, long film catch sleeve
Media Sizes	8" x 10", 14" x 17" (blue and clear), 14" x 36", 14" x 51" A, A4, 14" x 17" DirectVista Grayscale Paper A, A4, ChromaVista® Colour Paper and Colour Film* (blue only) DirectVista ® Film
Dmax	>3.10 with DirectVista Film
Archival	>20 years with DirectVista Film, under ANSI extended-term storage conditions
Supply Cassettes	All media is pre-packaged in factory sealed, disposable cassettes
Interfaces	Standard: 10/100 Base-T Ethernet (RJ-45), Serial Diagnostic Port, Serial Console
Network Protocols	Standard: FTP, LPR Optional: DICOM (up to 24 simultaneous connections),Windows network printing
Image Formats	Standard: TIFF, GIF, PCX, BMP, PGM, PNG, PPM, XWD, JPEG, SGI (RGB), Sun Raster, Targa Optional: DICOM, PostScript™ compatibility
Image Quality	Automatic calibration using built-in densitometer
Image Control	Gamma, Contrast, Saturation, Medical Colour Matching (MCM™), Polarity, Rotation, Scaling, Antialiasing
Sheet Control	Density Adjustment (Dmax), Look-Up Tables (LUT), Image Warnings, Captions, Sheet Coverage, Border Colour, Border Fill, Crop Anchor
Sheet Formatting	1:1-1:81; Variable Multi-Formatting (VMF™), Fixed Multi-Formatting (FMF™), 35mm SlideMaker™
Control Panel	Large, backlit LCD display, Status lights include Online, Alert, Fault, Active Power and Menu navigation buttons
Processor	Intel
Memory	512MB RAM
Hard Disk	20GB (18GB available for spooling)
Removable Disk	100MB ZIP™ Disk for software upgrades
Smart Card	32 KB for storing configuration data
Power	Universal Input: 100-120/230V~ 50/60 Hz, 600W printing, 150W idle
Weight	66 lbs. (30 kg.)
Heat Emission	Maximum 600W, 2,050 BTUs /hr. printing, 150W, 512 BTUs / hr. idle
Engine Dimensions:	14.5" (37 cm) H, 20.5" (52 cm) W, 24" (61 cm) L
Environment	Operating Temperature: 15-30C
Storage	-22.2 - 50.6C
Operating Humidity	10-70% R.H. (non-condensing)

14"x17", 8"x10", A, A4
Film, Grayscale and Colour Paper

14"x51", 14"x36"
Exclusive Dry Long Film for Orthopaedics

Horizon® GS-rad Multimedia Dry Imager

Overview

The Horizon® GS-rad is an intelligent, desktop dry film imager that produces superior diagnostic quality medical films as well as grayscale paper images fast, conveniently and in an affordable way. The imager is compatible with many industry standard protocols including DICOM and Windows network printing. Horizon also features direct modality connection, with up to 12 DICOM connections simultaneously. High speed image processing, networking and spooling are standard.

Specifications:

Print Technology	Direct thermal
Spatial Resolution	320 DPI (12.6 pixels/mm)
Throughput	Up to 100 films per hour
Grayscale Contrast Resolution	12 bits (4096)
Media Inputs	Three supply cassettes, 80-100 sheets each
Media Outputs	Three receive trays, 50-sheet capacity each
Media Sizes	8" x 10", 11" x 14" DirectVista® Film (blue and clear) A, A4, 11" x 14" DirectVista® Grayscale Paper
Dmax	> 3.10 with DirectVista® Film
Archival	> 20 years with DirectVista® Film, under ANSI extended-term storage conditions
Supply Cassettes	All media is pre-packaged in factory sealed, disposable cassettes.
Interfaces	10/100 Base-T Ethernet (RJ-45), Serial Diagnostic Port, Serial Console
Network Protocols	Standard: FTP, LPR Optional: DICOM, Windows network printing
Image Formats	Standard: TIFF, GIF, PCX, BMP, PGM, PNG, PPM, XWD, JPEG, SGI (RGB), Sun Raster, Targa Optional: DICOM, PostScript™ compatibility
Image Quality	Automatic calibration using built-in densitometer
Image Control	Gamma, Contrast, Polarity, Rotation, Scaling, Antialiasing
Sheet Control	Density Adjustment (Dmax), Look-Up Tables (LUT), Image Warnings, Captions, Sheet Coverage, Border Colour, Border Fill
Sheet Formatting	Variable Multi-Formatting (VMF™), Fixed Multi-Formatting (FMF™), 35mm SlideMaker™
Control Panel	Large, backlit LCD display
Status lights	Online, Alert, Fault, and Active Power and Menu navigation buttons
Processor	Intel
Memory	256MB RAM
Hard Disk	10GB (8GB available for spooling)
Removable Disk	100MB ZIP™ Disk for software upgrades
Smart Card	16KB for storing configuration data
Power	Universal Input: 100-120/230V~ 50/60 Hz 600W printing, 150W idle
Weight	66 lbs. (30 kg.)
Engine Dimensions	14.5" (37 cm) H, 20.5" (52 cm) W, 24" (61 cm) L
Environment	Operating Temperature: 15-30C
Storage	-22.2-50.6C
Operating Humidity	10-80% R.H.

Title

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The Horizon® Ci-rad is an intelligent, desktop dry film imager that produces superior diagnostic quality medical films as well as colour and grayscale paper images fast, conveniently and in an affordable way. The imager is compatible with many industry standard protocols including DICOM and Windows network printing. Horizon also features direct modality connection, with up to 12 DICOM connections simultaneously. High speed image processing, networking and spooling are standard.

Specifications:

Print Technology	Dye-diffusion and direct thermal
Spatial Resolution	320 DPI (12.6 pixels/mm)
Throughput	Up to 100 films per hour
Grayscale Contrast Resolution	12 bits (4096)
Colour Resolution	16.7 million colours. 256 levels each of cyan, magenta, and yellow
Media Inputs	Three supply cassettes, 50-100 sheets each One colour ribbon
Media Outputs	Three receive trays, 50-sheet capacity each
Media Sizes	8" x 10", 11" x 14" DirectVista® Film (blue and clear) A, A4, 11" x 14" DirectVista® Grayscale Paper A, A4 ChromaVista® Colour Film A, A4 ChromaVista® Colour Paper Dmax: > 3.10 with DirectVista® Film
Archival	> 20 years with DirectVista® Film, under ANSI extended-term storage conditions
Supply Cassettes	All media is pre-packaged in factory sealed, disposable cassettes
Interfaces	Standard: 10/100 Base-T Ethernet (RJ-45), Serial Diagnostic Port, Serial Console
Network Protocols	Standard: FTP, LPR Optional: DICOM, Windows network printing
Image Formats	Standard: TIFF, GIF, PCX, BMP, PGM, PNG, PPM, XWD, JPEG, SGI (RGB), Sun Raster, Targa Optional: DICOM, PostScript™ compatibility
Image Quality	Automatic calibration using built-in densitometer
Image Control	Gamma, Contrast, Saturation, Medical Colour Matching (MCM™), Polarity, Rotation, Scaling, Antialiasing
Sheet Control	Density Adjustment (Dmax), Look-Up Tables (LUT), Image Warnings, Captions, Sheet Coverage, Border Colour, Border Fill
Sheet Formatting	Variable Multi-Formatting (VMF™),Fxed Multi-Formatting (FMF™), 35mm SlideMaker™
Control Panel	Large, backlit LCD display
Status lights	Online, Alert, Fault, Active Power and Menu navigation buttons
Processor	Intel
Memory	256MB RAM
Hard Disk	10GB (8GB available for spooling)
Removable Disk	100MB ZIP™ Disk for software upgrades
Smart Card	16 KB for storing configuration data
Power	Universal Input: 100-120/230V~ 50/60 Hz 600W printing, 150W idle
Weight	66 lbs. (30 kg.)
Engine Dimensions	14.5" (37 cm) H, 20.5" (52 cm) W, 24" (61 cm) L
Environment	Operating Temperature: 15-30C
Storage	-22.2-50.6C
Operating Humidity	10-80% R.H.

Brilliant Print Series™

Affordable, Amazing Image Quality, Small Footprint

For exceeding the quality of office class printers and more economical than high-priced imagers, Codonics Brillient Print Series™ printers feature optimal color tables and enhanced print processes for delivering high-contrast grayscale and amazing color at a very low price.

When you need the right print, think Brilliant Print from Codonics.

Key Advantages

Codonics BP-1600 Reference Printer offers a groundbreaking combination of performance and versatility. Compact in size yet big on media flexibility, these affordable printers enable you to print documents in letter and legal formats, in high-contrast grayscale and high definition color.

Fast Printing to Enhance Efficiency

The outstanding image quality of the Brilliant Print Series is delivered even on ordinary office paper - no special paper required - helping to control costs while producing breathtaking output that is ready to be shared with professional colleagues and customers. With Single Pass Color™ Digital LED technology, the Brilliant Print Series offers print speeds of up to 32 ppm in color and 34 ppm in monochrome. Codonics Brilliant Print Series printers keep your work flowing.

Impressive Feature Set

All Brilliant Print Series models have full networking capability out of the box plus high-speed USB 2.0 connectivity, so their fast printing speeds and magnificent output are available to workgroups and individuals.

The Brillient Print Series™ printers deliver brilliant prints for the following applications:

- CT
- MRI
- Functional Imaging
- Endoscopy
- Fluoroscopy
- Angioscopy
- Ultrasound and more...

For the best printing value for your business, look no further than the Brilliant Print Series from Codonics.

Brilliant Print; cost efficient and versatile

Brilliant Print Series grayscale and color printers from Codonics empower your professional image. They also give you control over the quality of your output and printing costs. Unique HD (High Definition) color technology. For print quality that visibly enhances your documents, HD Color technology combines multilevel LED printheads and unique microfine toner with 1200 x 600 dpi resolution to provide greater depth of detail and color, and a gloss finish, even on ordinary office paper.

Fast Printing to Enhance Efficiency

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For the best printing value for your business, look no further than the Brilliant Print Series from Codonics.

Brilliant Print Series BP-1600

AT A GLANCE

- Single Pass Color™ technology with straight-through paper path delivers high speed and reliability
- High capacity standard toner cartridges: for cyan, magenta, yellow and black
- Printing speed at up to 30 pp in colour and 32 ppm in grayscale
- 1200 x 600 dpi print resolution and HD Color technology
- 4-line LCD display
- High reliability: 75,000-page per month duty cycle
- 100-sheet multi-purpose tray
- 300-sheet paper tray
- Optional 530-sheet 2nd paper tray
- Optional 530-sheet 3rd paper tray expands tray max capacity to 1,460 sheets

Brilliant Print Series BP-1800

AT A GLANCE

- Single Pass Color™ technology with straight-through paper path delivers high speed and reliability
- High capacity standard toner cartridges: for cyan, magenta, yellow and black
- Printing speed at up to 30 pp in colour and 32 ppm in grayscale
- 1200 x 600 dpi print resolution and HD Color technology
- 4-line LCD display
- High reliability: 75,000-page per month duty cycle
- 100-sheet multi-purpose tray
- 300-sheet paper tray
- Wide range of media handling
- Optional 530-sheet 2nd paper tray
- Optional 530-sheet 3rd paper tray expands tray max capacity to 1,460 sheets
- Optional storage cabinet

Brilliant Print Series™ BP-1600

Overview

Codonics BP-1600 Reference Printer offers a groundbreaking combination of performance and versatility. Compact in size yet big on media flexibility, these affordable printers enable you to print documents in letter and legal formats, in high-contrast grayscale and high definition color.

Specifications:

Print Speed	Up to 32 ppm Color; up to 34 ppm Monochrome
Time to First Page	As fast as 9 sec. Color; 8 sec. Monochrome
HD Color Printing Technology	Combines multilevel LED printheads and microfine toner for sharp detail and rich color depth
Print Resolution	1200 x 600 dpi
Duty Cycle	Up to 75,000 pg. / mo.
Operating Systems	Standalone and network– Windows® Vista®/Vista x64, XP Home/XP Pro/ XP x64, Server 2008/ Server 2008 x64, Server 2003/ Server 2003 x64, Win2000; Sun Solaris 8.0 and higher; HP-UX 11.0 and higher; Linux Kernel 2.4 and higher; Mac® support – OS X v10.3 and higher
Network Interface	10 / 100 Base-T Internal Ethernet Print Server
Local Ports	USB v2.0
Scalable	86 PCL fonts and 80 PostScript fonts
PCL 5e Bar Codes	UPC-A/E; EAN/JAN-8/13; Interleaved 2 of 5; Code 39/128; EAN/UCC-128; CODABAR; ZIP+4 PostNet®
Size (WxDxH)	17.1" x 21.5" x 13.4" (43.5 cm x 54.7 cm x 34 cm)
Weight	57.3 lb. (26 kg)
Power Consumption	Idle 100W; Operation 600W; Max 1,300W
Acoustic Noise	Operating < 54 dB; Standby < 37 dB (A)
Paper Input	Standard – BP-1600 (300-sheet Main Tray and 100-sheet Multi-purpose Tray); optional 530-sheet 2nd Paper Tray and 3rd Paper Tray for maximum paper load of 1,460 sheets
Paper Sizes (Min./ Max.)	Main Tray: 4.1" x 5.8" to 8.5" x 14"; Optional 2nd and 3rd Trays: 5.8" x 8.3 to 8.5" x 14"; Multi-Purpose Tray 3" x 5" to 8.5" x 14"
Paper Weight	Main Tray 17 lb. – 32 lb. bond (64 – 120 gsm); 2nd & 3rd Trays 17 lb. – 47 lb. bond (64 – 176 gsm); Multi-Purpose Tray 17 lb. – 54 lb. bond/80 lb. cover (64 – 220 gsm)
Warranty	2 years Imaging Solutions 'Basic Level' warranty; optional upgrade of Level and term
Options	530-sheet 2nd /3rd Paper Trays (BP1600-530TRAY)
Toner Catridges	Cyan Toner Cartridge DMMEDR623MRI, Magenta Toner Cartridge DMMEDR624MRI, Yellow Toner Cartridge DMMEDR625MRI, Black Toner Cartridge DMMEDR622MRI
Image Drum Kits	Cyan Image Drum Kit DMPADR627MRI, Magenta Image Drum Kit BPPADR628MRI, Yellow Image Drum Kit DMPADR629MRI, Black Image Drum Kit BPPADR626MRI

Brilliant Print Series BP-1800 Highlights

- A/A4 grayscale and color printer
- Compact design and small footprint easily fits into an environment
- HD Color Printing technology for sharp detail and rich full color
- Fast print speeds: color output at up to 32 ppm; monochrome at up to 34 ppm*
- Time-to-first-page as fast as 9 seconds color, 8 seconds monochrome*
- 1200 x 600 dpi resolution for crisp, clear output in color and grayscale
- Media handling from 8.5" x 11" to 8.5" x 14" prints
- Paper capacity expandable to 1,460 sheets with 2nd and 3rd paper tray options
- Single Pass Color™ Digital LED technology for printing up to 80 lb. cover stock (220 gsm)
- Low total cost of ownership in color and monochrome
- 5-year limited warranty on printer available

* Published performance results based on laboratory testing. Individual results may vary.

Brilliant Print Series™ BP-1800

Overview

Codonics BP-1800 Reference Printer offers a groundbreaking combination of performance and versatility. Compact in size yet big on media flexibility, these affordable printers enable you to print documents in letter, tabloid, A4 and A3, in high-contrast grayscale and high definition color.

Specifications:

Print Speed	Up to 30 ppm Color; up to 32 ppm Monochrome
Time to First Page	As fast as 10 sec. Color; 9.5 sec. Monochrome
HD Color Printing Technology	Combines multilevel LED printheads and microfine toner for sharp detail and rich color depth
Print Resolution	1200 x 600 dpi
Duty Cycle	Up to 75,000 pg. / mo.
Operating Systems	Standalone and network– Windows® Vista®/Vista x64, XP Home/XP Pro/ XP x64, Server 2008/ Server 2008 x64, Server 2003/ Server 2003 x64, Win2000; Sun Solaris 8.0 and higher; HP-UX 11.0 and higher; Linux Kernel 2.4 and higher; Mac® support – OS X v10.3 and higher
Network Interface	10 / 100 Base-T Internal Ethernet Print Server
Local Ports	USB v2.0 and Parallel
Scalable	86 PCL fonts and 80 PostScript fonts
PCL 5e Bar Codes	UPC-A/E; EAN/JAN-8/13; Interleaved 2 of 5; Code 39/128; EAN/UCC-128; CODABAR; ZIP+4 PostNet®
Size (WxDxH)	19.1" x 22.8" x 13.6" (48.5 cm x 57.9 cm x 35.5 cm)
Weight	79.2 lb. (35.9 kg)
Power Consumption	Idle 200W; Operation 570W; Max 1,350W; Power Save ≤17W
Acoustic Noise	Operating < 54 dB; Standby < 37 dB
Paper Input	Standard – BP-1800 (300-sheet Main Tray and 100-sheet Multi-purpose Tray); optional 530-sheet 2nd Paper Tray and 3rd Paper Tray for maximum paper load of 1,460 sheets
Paper Sizes (Min./ Max.)	Main Tray: 4.1" x 5.8" to 11" x 17"; Optional 2nd and 3rd Trays: 5.8" x 8.3 to 8.5" x 14"; Multi-Purpose Tray 3" x 5" to 11.6" x 51"
Paper Weight	Main Tray 17 lb. – 32 lb. bond (64 – 120 gsm); 2nd & 3rd Trays 17 lb. – 47 lb. bond (64 – 176 gsm); Multi-Purpose Tray 17 lb. – 54 lb. bond/80 lb. cover (64 – 220 gsm)
Warranty	2 years Imaging Solutions 'Basic Level' warranty; optional upgrade of Level and term
Options	530-sheet 2nd /3rd Paper Trays: BP1800-530TRAY Storage Cabinet : BP1800-CABINET
Toner Catridges	Cyan Toner Cartridge DMMEDR864MRI, Magenta Toner Cartridge DMMEDR865MRI, Yellow Toner Cartridge DMMEDR866MRI, Black Toner Cartridge DMMEDR863MRI
Image Drum Kits	Cyan Image Drum Kit DMPADR891MRI, Magenta Image Drum Kit DMPADR892MRI, Yellow Image Drum Kit DMPADR893MRI, Black Image Drum Kit DMPADR890MRI

Brilliant Print Series BP-1800 Highlights

- A4/A3/wide-format/tabloid grayscale and color printer
- Compact design and small footprint easily fits into any environment
- HD Color Printing technology for sharp detail and rich, dramatic color
- Fast print speeds: color output at up to 30 ppm; monochrome at up to 32 ppm*
- Time-to-first-page as fast as 10 seconds color, 9.5 seconds monochrome*
- 1200 x 600 dpi resolution for crisp, clear output in color and grayscale
- Media handling from 8.5" x 11" to 11" x 17"
- Paper capacity expandable to 1,460 sheets with 2nd and 3rd paper tray options
- Single Pass Color™ Digital LED technology for printing up to 80 lb. cover stock (220 gsm)
- Low total cost of ownership in color and monochrome
- 5-year limited warranty on printer available

* Published performance results based on laboratory testing. Individual results may vary.

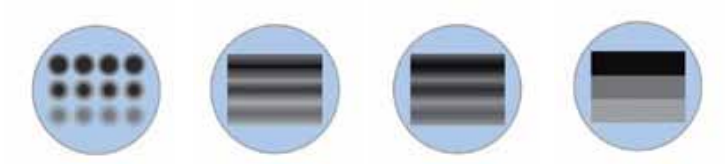
Printer Accessories and Consumables

Imaging Solutions supply a comprehensive range of quality accessories and consumables as well as additional options for certain product models. Our range of accessories and consumables include superior quality film and paper, CDs and DVDs, ink cartridges, markers, cases and sleeves.

Codonics Film

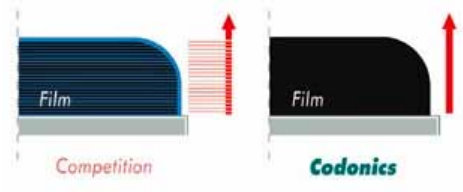
DirectVista® Diagnostic Blue and Clear Film

Codonics patented imaging technology outputs superior diagnostic dry film with an unmatched image quality. The film is the ideal solution for the most demanding medical hardcopy applications. Completely eliminating space between lines by advancing the film in a smooth motion, the diagnostic output is precise and consistent. Codonics film is available in 14"x 17",11"x14" and 8"x 10", giving the user the option to scale the image to the appropriate film size, providing an alternative to print at a lower cost. Plus, our exclusive 14"x 36" and 14" x 51" long film provides specialized orthopaedics with "digitally stitched" true-size images for long bone and scoliosis studies on one continuous film.

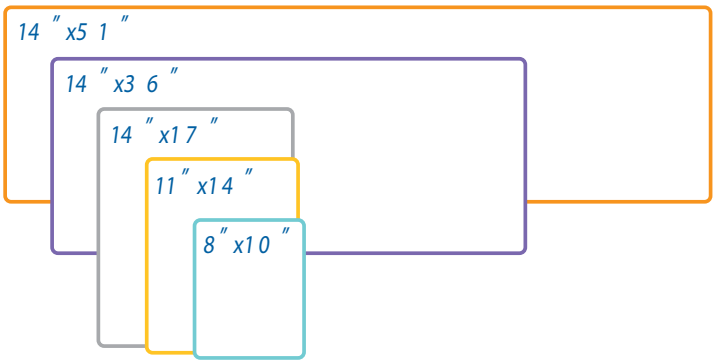


Traditional Thermal	Low Cost laser	High Cost Laser	Codonics 'No Pixel'
Gaps and Artifacts	Gaps and Artifacts	No Gaps	No Gaps

In thousands of side by side comparisons, board certified radiologists could not tell the difference between images printed on Codonics imagers from those printed on more expensive laser imagers. Codonics' patented imaging technology outputs diagnostic film and paper achieving unmatched versatility and image quality.



Dynamic Media Transport System (DMTS) allows Codonics imagers to print while the media advances in a smooth motion eliminating space between lines.



Available Sizes:

Horizon Imagers

- 14"x 51" (35 x 130 cm)
- 14"x 36" (35 x 92 cm)
- 14"x17" (35 x 43 cm)
- 11"x14" (28 x 35 cm)
- 8"x10" (20 x 25 cm)

NP/EP Imagers

- 8"x10" (20 x 25 cm)

Codonics DirectVista Blue 8x10 (500 sheets)	810-DVB
Codonics DirectVista Clear 8x10 (500 sheets)	810-DVC
Codonics DirectVista Blue 11x14 (500 sheets)	1114-DVB
Codonics DirectVista Clear 11x14 (500 sheets)	1114-DVC
Codonics DirectVista Blue 14x17 (500 sheets)	1417-DVB
Codonics DirectVista Clear 14x17 (500 sheets)	1417-DVC
Codonics DirectVista Blue 14x36 (100 sheets)	1436-DVB
Codonics DirectVista Blue 14x51 (100 sheets)	1451-DVB

Superior Quality Images in Cost Saving Sizes.

> “The quality is superior to the traditional film imagers we were previously using.”
>
> - A. Joseph Borelli, M.D., MRI (Belfair -Bluffton, SC)

- Completely digital, our unique direct thermal technology achieves image quality better or equal to “laser quality”
- Convenient dry printing eliminates the need for plumbing, special ventilation and siting requirements
- 14” x 36” and 14” x 51” long film for digitally stitched true-size images on one continuous film
- Multiple film sizes allow you to lower film costs by printing on the most economical size for your application

Specifications:

- Compatible with Horizon and NP/ EP multi-media imagers
- Continuous tone grayscale rendering
- Dmin < 0.10 OD, Dmax > 3.00 OD (transmissive)
- Thickness ~ 0.2mm

Codonics Paper

ChromaVista® Colour Paper

With more of today's medical systems using colour applications, Codonics is leading the medical imaging industry with their ChromaVista® Colour Paper.

> "We work with a neurology group that was thrilled when they saw how our razor-sharp colour studies on paper could be slipped conveniently into patient charts. It literally changed their practice."
>
> - John C. Litchney, MBA, RT,
> (Administrator for The Cleveland Clinic,
> Department of Regional Radiology)

Colour prints always match soft copy monitors with our exclusive Medical Colour Matching (MCM™) feature. Consistency, clarity and saturation with Codonics' colour dye-diffusion technology exceeds wax or inkjet printers.

ChromaVista Colour Paper has a heavy, photo-weight base material that resists water and tearing. Since there is no ink or toner, images never smear or transfer onto hands or other prints.

Features:

The Horizon Multi-media Imager features stunning edge-to-edge colour printing, maximizing imaging size and reducing waste. Codonics exclusive Medical Colour Matching (MCM™) advanced image processing feature adjusts printed output colours to accurately match soft-copy monitors. This process corrects differences in hue, saturation, and intensity between the printer and soft-copy review stations. User's can easily determine the best match for their screen using the automatic MCM bracketing feature which is built into every Codonics imager.

- Codonics exclusive Medical Colour Matching (MCM™) ensures prints match soft-copy monitors
- Ideal for referring physicians and patient take-homes
- FDA approved and fully archivable
- Image quality superior to office printers (16.7 million colours)
- The only colour output in the industry that truly rivals conventional colour photographic film

Available Sizes:

Codonics ChromaVista Paper A4 (100 sheets)	A4-CVP
Codonics ChromaVista Paper A (100 sheets)	A-CVP

Ink Cartidges

BravoPro Ink Cartridges

Ensure you can print when you need to by using a BravoPro Colour Ink cartridges. Suitable for Codonics Horizon printers.

BravoPro Colour Ink Cartridge	FAR293
Bravo Pro Black Ink Cartridge	RAF294

Condonics BP Ink Cartidges

Tailor-made for the Brilliant Print Series printes from Codonics.

BP 1600 530-sheet 2nd & 3rd Paper Tray (Per Tray)	BP1600-530TRAY
BP 1600 Toner Cartridge Black	DMMEDR622MRI
BP 1600 Toner Cartridge Cyan	DMMEDR623MRI
BP 1600 Toner Cartridge Magenta	DMMEDR624MRI
BP 1600 Toner Cartridge Yellow	DMMEDR625MRI
BP 1600 Image Drum Black	DMPADR626MRI
BP 1600 Image Drum Cyan	DMPADR627MRI
BP 1600 Image Drum Magenta	DMPADR628MRI
BP 1600 Image Drum Yellow	DMPADR629MRI
BP 1600 Transfer Belt	DMPADR630MRI
BP 1600 Fuser 230V	DMPADR623MRI
BP High Impact Paper - A (500 sheets)	DMME12349MRD
BP High Impact Paper - A4 (500 sheets)	DMME12372MRD
BP White Film - A (500 sheets)	DMME12355MRD
BP White Film - A4 (500 sheets)	DMME12376MRD
BP Premier Paper - A (500 sheets)	DMME12371MRD
BP Premier Paper - A4 (500 sheets)	DMME12374MRD
BP Premier Paper - 10x12 (500 sheets)	DMME12365MRD
BP Premier Paper - 11x14 (500 sheets)	DMME12368MRD
BP Premier Paper - 11x17 (500 sheets)	DMME12362MRD

DirectVista® Grayscale Paper

Reduce hardcopy costs without sacrificing image quality by using exclusive Direct Vista® Grayscale Paper from Codonics.

Features:

If you use a high quality printer like Codonics Horizon, you'll want to use a quality paper ensure the best possible output. That's Codonics' range of film and paper.

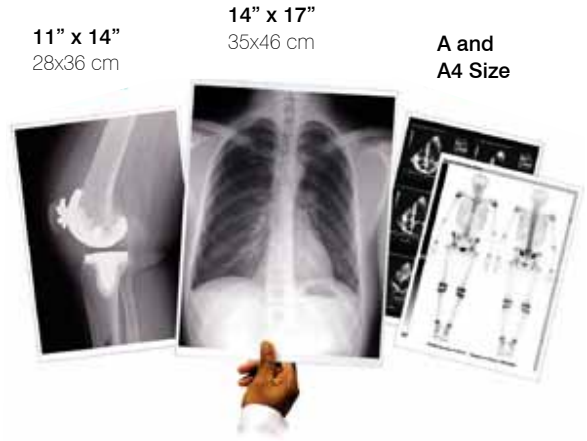
- Superior quality prints at a fraction of the cost of film
- Image quality is far superior to laser and office printers
- Ideal for referring physicians and patient consultations
- Letter size allows it to fit conveniently into a referring physician report or patient's chart for quick reference
- No toner, wax or ribbons to ever replace

"Paper printing is a boon to radiology, not only in reducing media price but also by realizing significant savings in workflow and other soft-costs."

- John C. Litchney, MBA, RT, Administrator
(The Cleveland Clinic, Department of Regional Radiology)

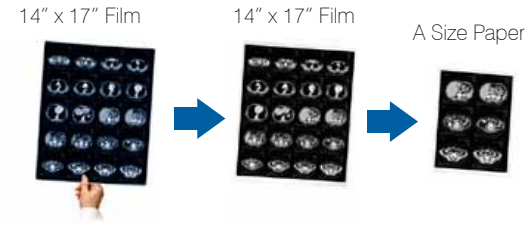
"This paper-like media is significantly more affordable than film and offers many advantages to the end user."

- Dr. David Stemerman, Radiologist,
(Open High-Field MRI and CT of Westchester, NY)



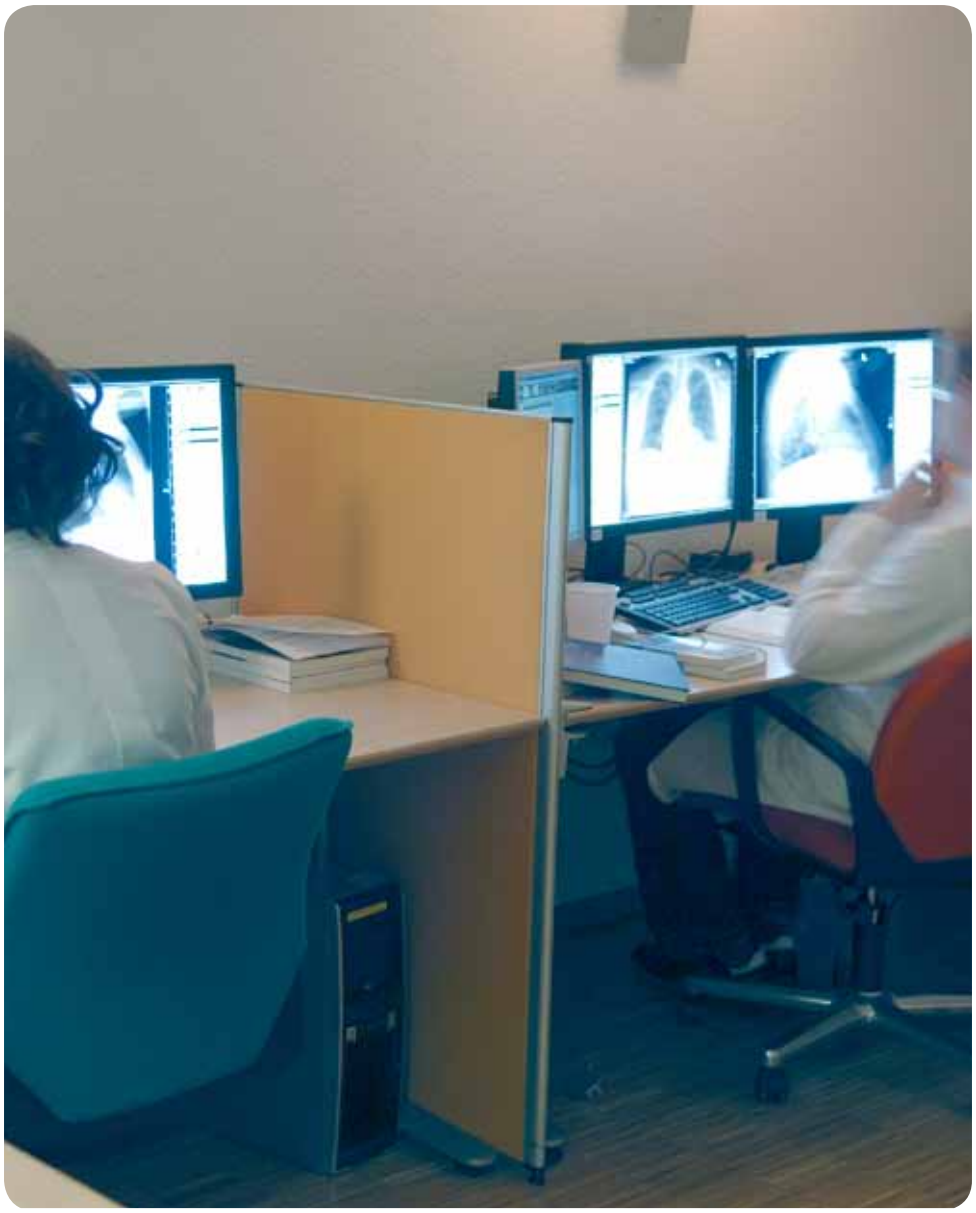
Available Sizes:

Codonics DirectVista Paper 11x14 (400 sheets)	1114-DVP
Codonics DirectVista Paper 14x17 (400 sheets)	1417-DVP
Codonics DirectVista Paper A4 (400 sheets)	A4-DVP



Reduce your film budget with DirectVista Paper. Substituting 14"x17" paper for large format film immediately reduces your hardcopy cost by 25%, while placing key images on letter size paper increases the savings up to 65% over film!

DirectVista Grayscale Paper has a heavy, photo-weight base material that resists water and tearing. Since there is no ink or toner, images never smear or transfer onto hands or other prints.



Heathcare Information Routing Solutions

Products and software applications to distribute DICOM data, video and other health information within healthcare environments.

Matrox

A leader in multi-display technology, image quality, support and reliability, Matrox leverages over 30 years of industry experience in creating high-quality and innovative graphics solutions. Matrox brings its experience and renowned technology to the medical imaging market with display controller boards designed to meet the crucial needs of medical imaging professionals.

Equinox™

Matrox Equinox™ graphics extension unit allows operating room (OR) architects, administrators, and surgical staff to design and deploy high resolution or high definition dual displays at a distance from the PC. Distribute and route images, audio and video to hospital educational facilities, operating rooms, planning rooms, and control rooms–all from a single system. Experience connectivity like never before.

Designed for the Operating Room Environment

Isolate the system in a secure, networked computer room, or place it in the planning or control room and remove it from within the limited and hygienic OR space. Using a single run, fiber-optic cable, Equinox stations are electrically and magnetically isolated up to 250 meters (820 feet) away from the system. With no fans, Equinox stations provide a noiseless, standalone solution.

Your Hospital OR - Your Way

Distributing and locating devices with Equinox ensures that only one single system is on the hospital network eliminating dedicated audio/video networks, equipment and expensive cable clutter. All devices connected to Equinox stations on a single PC inherit and can control any aspect of the computing station as though they were resident in that computing station. Display device calibration is localized for easy access and system maintenance. Matrox Desktop Divider gives the ability to divide a display output into multiple regions and PowerSpace will allow users to organize and define desktop workspaces.

A Window Into the OR

Matrox Onyx™–a companion board for Matrox Equinox–drives displays at the host PC location and can replicate OR display information, enabling OR staff to plan and monitor surgeries from outside the OR.

Features:

- Industry standard fiber-optic cabling localizes Equinox up to 250 meters (820 feet) from a computing station while reducing cable clutter
- Fan-less product, for a noiseless solution
- With Matrox PowerDesk and PowerSpace, data, images, desktop and audio can be routed and distributed to any Equinox station
- Replicate and consolidate displays amongst Equinox and/or Onyx™ stations, allowing surgical staff to plan procedures outside the OR and better communicate from the control room
- Computing station remote boot maintenance, management and interaction from any Equinox station
- Electrical ground loop isolation and magnetic interference isolation over entire optical cable distance
- Analog and/or digital high resolution and high definition displays up to 4 MP
- ExtendiGray technology accurately converts color displays into grayscale, reducing color distraction during readings, and allows for concurrent execution of color and grayscale applications on a single grayscale desktop
- DICOM Pt. 14 GSDF compliance to calibrate displays
- Small footprint with fan-less and noiseless operation
- Ability to manage the PC from any Equinox station, and manage any display remotely from the PC using Matrox PowerDesk and/or Matrox PowerSpace, along with the ability to partition displays using Matrox Desktop Divider providing the ability to communicate in a WYSIWYG methodology and plan procedures in a WYSIWYG approach

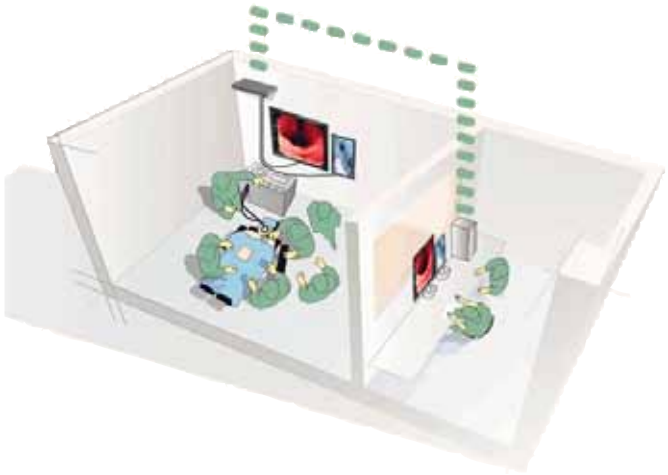
Specifications:

Interface Cards 1.2

Sold separately	PCIe x1 (compatible in PCIe x1, x4, x8 & x16 slots)or PCI-32 (compatible in PCI33, PCI66, PCI-X & PCI-X133 slots)
Dimensions	• PCIe x1 interface card: 4.72" (12cm) x 2.68" (6.80cm) • PCI-32 interface card: 4.7" (11.9cm) x 2.5" (6.3cm) • XT Unit: 1.15" (2.7cm)H x 1.8" (30cm)L x 5.8" (14.5cm)
Memory	128MB
Display Support	Dual output configurations for dual digital, dual analog or one digital and one analog display Equinox is 100% VGA compatible and supports all VESA standards: VBE2.0 (Super VGA modes), DPMS (energy saving), and DDC-2B (Plug and Play monitor)
Display Connectors3	Two (2) DVI-I connectors plus two (2) HD15 analog connectors
Digital Communications	DDC-CI (support available for custom EDIDs)
Display Formats	Industry standard or custom 4:3, 5:4, 16:9 and 16:10 displays
Display Resolutions	Each digital output up to 2560x1600 (4 MP) Each analog output up to 1920x1200 (2.1 MP)
Display modes	Color or ExtendiGray© (capable of accurately converting color data to grayscale without artifacts)
Display Compliance	Each output is DICOM Part 14 GSDF compliant using 3rd Party calibration solutions
Audio Support	mini-TOSLINK output mini-stereo-jack line-out connector (3.5 mm / 1/8") mini-stereo-jack line-in connector (3.5 mm / 1/8") mini-jack MIC connector with bias current (3.5 mm / 1/8")
USB Support	Six (6) USB 2.0 (USB 1.1 compatible), 480Mb/s ports
Power Input Connector	Lock-in, mini-DIN 4 (12 VDC, 5 A)
Fiber Optic Connectors	Industry standard fiber-optic, dual-LC
Fiber Optic Cable Requirements	Duplex, multi-mode, dual-LC connectors · 50/125 μm cable for 250 meters (820 feet) maximum · 62.5/125 μm cable for 150 meters (492 feet) maximum
Laser Emissions	850 nm laser compliant to 21CFR, Subpart J, Class 1
EMC certifications	FCC Class A
Environmental - temperature	Operating temperature from 0 to 55 degrees Celsius Maximum operating temperatures: 55°C in an enclosure with airflow 45°C in a zero-airflow environment
Environmental - atmospheric	Operating pressure from about 620 to 1013 hPa
Environmental - humidity	Operating humidity from 20% to 80%, non-condensing
OS support	Microsoft® Windows® XP, Windows Vista®, and Windows 74

Onyx™

Matrox Onyx™ — a companion board for Matrox Equinox™ graphics extension unit–provides a window into the operating room for OR planning and control room staff. Matrox Equinox connects one or two high resolution displays, keyboard, mouse, and audio to a host PC that is electrically and magnetically isolated up to 250m (820 feet) away. Matrox Onyx™ drives one or two high resolution displays at the host PC location, replicating information on OR displays, and enabling OR staff to plan and monitor surgeries from outside the OR.



Features:

- Single Matrox Onyx™ PCI Express board supports high resolution and high definition displays of up to two 4 MP digital, two 2 MP analog displays, or one of each
- Fan-less product, for a noiseless solution
- Dual independent outputs allows any combination of two different digital and/or analog resolutions
- ExtendiGray© technology accurately converts color displays into grayscale, reducing color distraction during readings, and allowing for concurrent execution of color and grayscale applications on a single grayscale desktop
- Flicker-free output and pristine image quality
- Capable of driving stretched1 or independent display modes
- Hardware Pivot provides smooth and accelerated image display
- Bus performance optimized for fast window & level and cineloop applications
- Display replication allows OR displays to be replicated outside the OR, ensuring exact visualization of OR imaging, information, display resolutions and orientations
- Combine Equinox & Onyx™, for additional flexibility and control:
- Replicate any display or identical display pair
- View any display on any other display
- Switch applications on any display
- Partition any display with Matrox Desktop Divider
- Manage all displays remotely via Equinox or at the host PC via Onyx™
- Configure systems with matching displays and maintain the correct aspect ratios, resolutions and orientations
- Only one driver needed when using Equinox and Onyx™ together

[1] Stretched mode requires two displays to be in the same orientation, resolution and color mode.

Specifications:

Bus Interface	PCI Express (PCIe x16)
Dimensions	Short length, full height, PCIe x16
Frame Buffer Memory	256 MB of high-speed memory for fast image caching and loading
Display Support	Dual DVI-I connectors supporting configurations for dual digital, dual analog, or one digital and one analog display. Dual outputs provide independent resolutions for up to two 4 MP digital and up to 2 MP analog displays, in grayscale or color.
Digital Communications	DDC-CI (support available for custom EDIDs)
Display Calibration	As supplied by each display vendor, or with purchase of third-party hardware/software solutions
Display Configurations	Color/Color, Color/Grayscale, Grayscale/Color, Grayscale/Grayscale
Display Compatibility	Digital: Up to 4 MP 2560x1600 (landscape) and up to 1600x2560 (portrait) resolutions Analog: Up to 2.1 MP 1920x1200 (landscape) and up to 1200x1920 (portrait) resolutions Onyx is 100% VGA compatible and supports all VESA standards: VBE2.0 (Super VGA modes), DPMS (energy saving), and DDC-2B (Plug and Play monitor)
Display Resolution	Each digital output up to 4 MP 2560x1600 (landscape) and up to 1600x2560 (portrait) resolutions Each analog output up to 2.1 MP 1920x1200 (landscape) and up to 1200x1920 (portrait) resolutions
Display Settings	Mixed mode ExtendiGray or color output ExtendiGray© capability for accurate conversion of color data to grayscale without artifacts on 8-bit displays
Dual Programmable LUTs	Import a non-linear gamma ramp from a calibration device and independently program either display's Look Up Table (LUT) outputs
OS Support	Microsoft® Windows® XP, Windows Vista®, and Windows 71
VGA Support	Built-in controller displays boot messages on either a fixed frequency or multi-sync monitor
Software Support	Supports OpenGL® 1.3 and/or DirectDraw/DirectX compatible applications
Industry Compliance	Each output is DICOM Part 14 GSDF compliant using 3rd Party calibration solutions
EMC Certifications	FCC Class A
Environmental - Temperature	Operating temperature from 0 to 55 degrees Celsius
Environmental - Atmospheric	Operating pressure from about 650 to 1013 hPa
Environmental - Humidity	Operating humidity from 20% to 80%, non-condensing

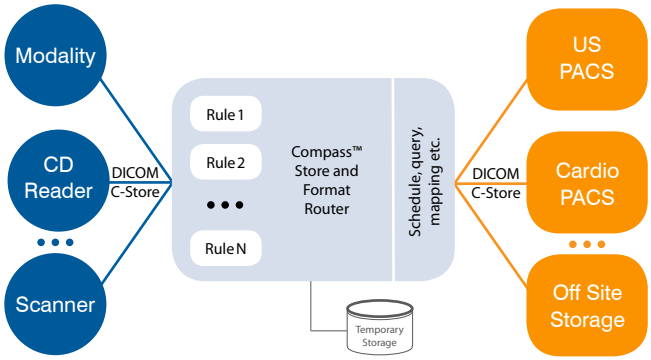
Laurel Bridge

Laurel Bridge's industry leading product line is the result of over 20 years of developing DICOM libraries, toolkits, routers, filters, and DICOM PACS and mini-archive storage systems. Their collection of DICOM software tools makes it easy to route, store, filter, map, archive, retrieve, modify, manage, morph and migrate your datasets.

Compass™

Robust gateway interface engine for routing, replicating, monitoring and altering DICOM store jobs.

Compass™ is a routing application for DICOM store jobs. It allows the user to route, replicate, monitor, and optionally alter DICOM store jobs. By using powerful routing rules, one can easily route DICOM store jobs from point A to point B. Additionally, by using its ability to apply custom filters, Compass may be used to facilitate the interconnection of otherwise incompatible devices. Modality management is also simplified: modalities need only be configured to store to Compass, which can then store the study to one or more destinations.



Because unrestricted end to end communications are difficult to manage, many facilities use interface engines as central mapping programs; Compass acts in that role as a DICOM gateway interface engine for DICOM communications, serving as all-in-one DICOM bridge, DICOM gateway and DICOM router for these communications. By using powerful mapping rules, one can easily route DICOM store jobs from point A to point B.

Additionally, by using its ability to apply custom filters, Compass may be used to facilitate the interconnection of otherwise incompatible devices. Modalities need only be configured to talk to the DICOM gateway and mapping rules may be changed to re-direct the modality data to a different server. In each case the configuration and mapping is done once on the sources and destinations and reconfiguration can be handled centrally in the gateway.

Key Features:

- Tag based routing
- Store to multiple destinations
- Configurable destination schedules
- Data filtering capability

Features:

Select routing and mapping rules based on public DICOM tags and/or association information such as day-of-week and/or time-of-day to facilitate institutional scheduling requirements.

Correct various connectivity problems by defining filters which can add/delete/modify DICOM tags, as well as change their transfer syntax.

Aggregate a study from multiple inbound associations into a single outbound association, providing advanced DICOM router functionality.

Route a single DICOM store job from one SCU to multiple SCPs.

User defined filters may be added to any association, providing the ability to modify or map certain fields before forwarding, thus allowing the user to correct various connectivity problems.

Schedule outbound jobs to be run during a specific time-of-day and/or day-of-week.

Temporarily queue up outbound jobs to a particular destination while the destination is undergoing maintenance.

Ability to alter the encoding (transfer syntax) of sop instances as they pass from one system to another, e.g., A modality stores images to Compass as implicit-little-endian syntax, and Compass forwards those images to a remote archive server using one of the various JPEG or JPEG 2000 compression transfer syntaxes.

Log and monitor DICOM transactions in a user-friendly, human-readable format.

Log verbosity that is dynamically configurable via a convenient interface.

Make multiple client devices appear as a single device to a server.

Route DICOM store jobs from one SCU to more than one SCP to facilitate testing of new devices.

Benefits:

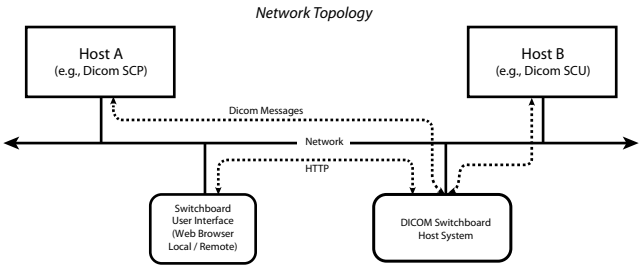
- **Control** — Dynamic control of the mappings and related configuration facilitates ease of use.
- **Selectivity** — Users are able to control and monitor the associations or transactions of interest.
- **Flexibility** — Optional and configurable logging, diagnostic, and filtering operations may be performed as the messages are forwarded between devices.

Switchboard™

The all-in-one solution for routing, filtering, monitoring and conversion of DICOM data sets.

Switchboard™ provides the ability to transparently monitor, log, filter, and convert DICOM data sets during DICOM network communications, serving as a multipurpose DICOM bridge. Designed primarily for network or PACS administrators, developers, field service engineers, migration specialists or anyone responsible for integrating DICOM devices, it facilitates interconnection of otherwise incompatible DICOM devices and rule based correction of data set elements in real-time.

The user configures two DICOM network devices to communicate through Switchboard, which acts as an intermediate node: inspecting,



forwarding, and optionally filtering and logging DICOM PDUs sent by each DICOM Application Entity. The user may configure, monitor or control the application via any web browser that has network access to the device running Switchboard.

Normally provided for installation on Windows, Switchboard can also be supplied for a variety of popular platforms.

Benefits:

- **Selectivity** — Filter transactions of interest without worrying about other network traffic or other DICOM device communication.
- **Flexibility** — Performs optional, configurable filtering operations on actual messages, requires no secondary operations.
- **Control** — Dynamic control of the logging verbosity allows selective monitoring at an appropriate level of detail.
- **Low Cost** — No special equipment is required, the software installs and runs on your own hardware.
- **Portability** — Switchboard typically runs on Windows systems, but is also available for Linux systems.
- **Ease of use** — Convenient web-based GUI allows filtering to be defined and performed without coding custom software.
- **Convenient** — User may access the control interfaces from any system with web access to the Switchboard device.

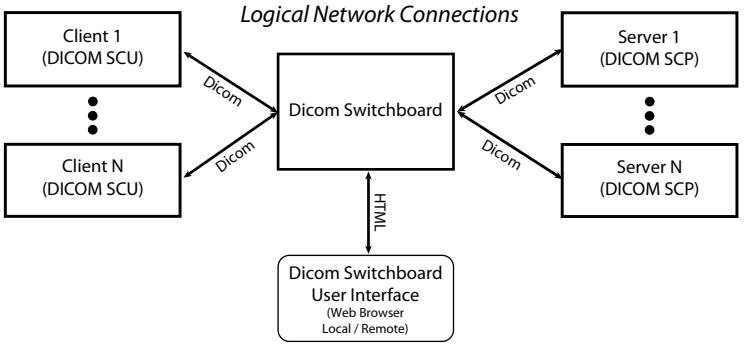
Features:

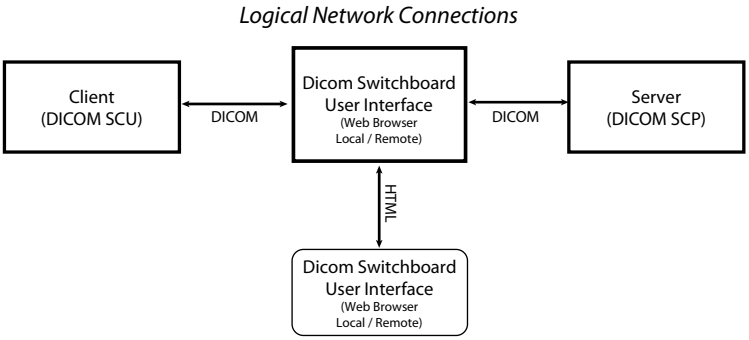
- **Configurable Filters** — Provides for configurable filters that may alter selected DICOM message elements in real-time enabling Switchboard to detect and optionally modify or "fix" selected DIMSE messages.
- **Mapping Rules** — Device mapping rules route DICOM Messages and select filter sets to apply based on source host and/or AE Title.
- **Tag Modification** — DICOM elements may be added to, deleted from, or modified in the data sets as they pass through. Regular expression matching filters may be used to select and alter data set elements in complex ways.
- **Modification Tracking** — Optionally stores a record of data set modifications in the DICOM Original Attributes Sequence and/or the Contributing Equipment Sequence.
- **Modification Look-up** — Provides an option to look up modifications to apply from a text-based list.
- **Alter Transfer Syntax** — Provides the ability to alter the transfer syntax encoding when required to provide capabilities not supported by one host; for instance, Switchboard may be used to convert a data set from Explicit Little Endian to JPEG-lossless compression.
- **Portable and Robust** — May run on the same or a different computer as the source or destination hosts. It is immune to packet dropping since it actively participates in the DICOM association.
- **Remote Monitoring** — Provides local or remote GUIs for web-based control and monitoring of Switchboard.
- **PDU Repackaging** — Provides the ability to re-package PDUs into different sizes if required.
- **Association Logging** — Provides monitoring/logging of DICOM associations. Log verbosity is dynamically configurable during an association to show various levels of DICOM information: association setup, ACSE PDUs, DIMSE reads/writes, PDU contents — summary or a full hexadecimal byte dump - and TCP/IP transactions.
- **Selective Logging** — only monitors the connection of interest, not all network traffic, eliminating much extraneous data.
- **Dual mode operation** — Transparent PDU forwarding vs. PDU Filtering Mode, both with logging capability.
- **Real-time Status** — A real-time status monitor and log console provide dynamic display of active associations and related network activity.

Application Examples

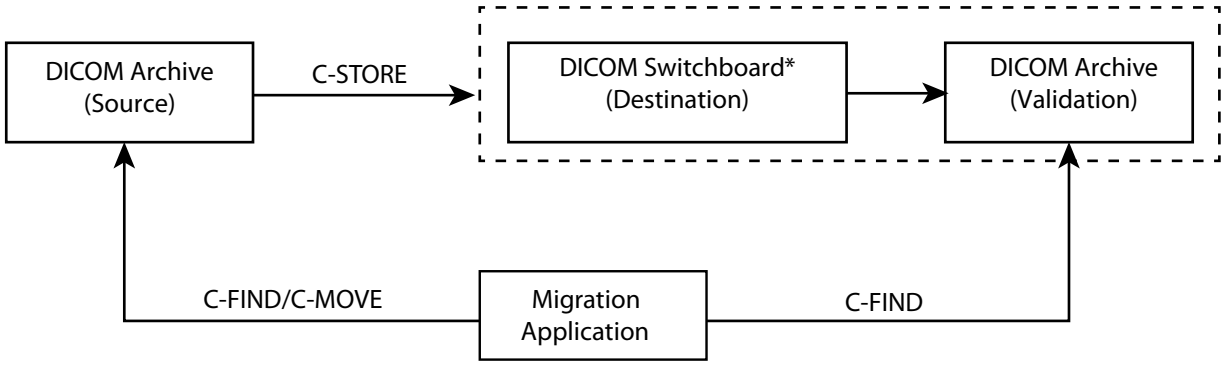
Switchboard is an in-line, network-switching device and operates at level 5, the Session Layer, in the OSI reference model. It accepts DICOM associations, where clients connect using the host, port, and AE_Title; Switchboard then creates a corresponding association to a remote device, the address of which is determined by a set of user configurable mapping rules. Messages are forwarded between the two devices while Switchboard does optional logging, diagnostic, and filtering operations.

- Switchboard can function similar to an interface engine providing a common interface for a particular DICOM service; all modalities (clients, SCU) connect to a device (server, SCP) via Switchboard. If the server has to be replaced, serviced or modified, no modifications to clients are required, only Switchboard's configuration needs to be modified. If a server is replaced, Switchboard's configuration is updated with the new server's identity and subsequent communications from clients are forwarded to the new server.
- Switchboard may be used to connect two DICOM devices that have some incompatibility in their implementation of the DICOM protocol, such that certain protocol fields need to have their values provided or altered. The DICOM DIMSE message filtering services in Switchboard can handle the detection and modification of the appropriate fields without requiring DICOM Switchboard logical network connections enabling message filtering via HTML interface between DICOM SCU and DICOM SCP. modifications to either the DICOM SCU or SCP (client or server) devices. Once the connection is functioning as desired, the service engineer can leave Switchboard in place or pursue permanent corrections to the offending device by consulting with the manufacturer.
- Referring to the same diagram, Switchboard may also be used to alter the encoding (transfer syntax) of messages as they pass from one system to another. For example, a modality (client, SCU) sends Switchboard implicit-little endian syntax and Switchboard passes messages to a remote archive (server, SCP) using one of the various JPEG compression transfer syntaxes.





- The Switchboard may be used as a supplementary tool to assist in the migration of DICOM data from one archive to another that is using a 3rd party migration application. Typically, the Switchboard is placed between the source and destination archives and provides the ability to apply user-defined filters to the DICOM data sets as they are being migrated. Data set elements may be altered in real-time. For example, tags may be added to the data sets: the Contributing Equipment Sequence could be set to record the original source archive for a data set, or tags may have their values dynamically modified, or unneeded tags could be removed. The Original Attributes Sequence may be automatically added or appended to preserve a record of any changes made.



PacsGEAR

PACSGEAR is the leader in PACS/EHR connectivity solutions for hospitals and healthcare facilities. Its innovative software seamlessly integrates documents, film, video, visible light and other images from any department to any PACS/EHR. Healthcare personnel in specialties such as radiology, cardiology, gastroenterology, dermatology, orthopedics and pathology can connect, view and share images and results to enable health information exchange.

PacsConnect™

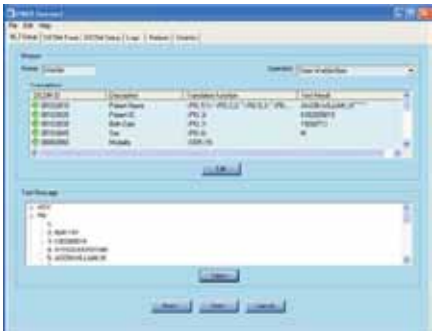
PacsConnect™ is a proven workflow solution for hospitals and imaging centers. Built on open standards such as DICOM and HL7, PacsConnect enables IHE workflow for interoperability with your existing PACS. Simple and powerful software delivers data accurately and effi ciently throughout your enterprise. Most importantly, PACS Administrators can monitor and configure the application anywhere on the network.

PacsConnect lets technologists select the appropriate study at each modality without having to manually re-enter patient demographics, which eliminates data entry errors. Includes full DICOM and HL7 trace logs, worklist/patient queries, and lookup tables for easy data re-mapping.

- **Easy** – Simple user interface manages HL7 to DICOM MWL mappings
- **Fast** – Quick, wizard-based installation and confi guration
- **"It just works"**– Validated against a wide variety of PACS and modalities

Features:

- Simple user interface manages HL7 to DICOM MWL mappings
- Quick, wizard-based installation and configuration
- Validated against a wide variety of PACS and modalities
- Provides order and worklist information for non-scheduled departments such as cardiology, gastroenterology, dermatology, orthopedics and pathology
- Manage remotely from any PC



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